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MEETING OF THE ENTOMOLOGICAL CLUB OF THE AMERICAN ASSOCIATION FOR THE ADVANCE- MENT OF SCIENCE.

(Continued from Page 197.)

In reference to the flight of butterflies, Mr. Lintner spoke of the enormous flocks of *Vanessa cardui* which had been seen in Italy, Spain and Germany during the summer.

Mr. Grote referred to an undescribed insect for which he proposes the name of *Oiketicus Abbotti*; he had obtained the cases of this insect on the cotton plant in the South, but had not seen the imago until he had reared it. This species is figured by Abbot in unpublished plates in the British Museum; it is referred to also in Harris' Correspondence, edited by Scudder.

The election of officers then took place, with the following result:

President,	-	-	S. H. Scudder.
Vice-President,	-	-	A. R. Grote.
Secretary,	-	-	B. P. Mann.

After some discussion it was agreed that in future it was desirable that the President and Vice-President hold office for one year only.

The meeting then adjourned until the afternoon of the following day.

WEDNESDAY AFTERNOON SESSION.

Dr. Morris mentioned an interesting case of retarded development which had come under his notice, where a specimen of *Papilio asterias* remained in the chrysalis state two years and a half before the imago appeared.

Mr. Lintner remarked that instances of retarded development were common among the Bombycidae, and especially mentioned *aceropia*; it

also occurs frequently among the Sphingidæ, where a specimen will pass over one season until the next in the chrysalis state ; this has been supposed to be a natural provision for the perpetuation of the species.

Mr. Bassett enquired whether in such examples they were not uniformly females. Mr. Lintner stated that in his experience both sexes were retarded.

Prof. Martin exhibited transparent specimens of gum copal in which were imbedded Hymenopterous insects. He stated that copal is a fossil resin of the post-tertiary period obtained chiefly from Mozambique ; that he had found in this resin about fifty species of insects, about one-third of which were Coleoptera, one-third Diptera and the other third of the remaining Orders ; two of the latter were Lepidopterous, one a Geometer, and the other he thought belonged to Zygaenidæ.

Mr. Bethune mentioned that he had found the larvæ of the Colorado Potato Beetle eating the leaves of the common Milk-weed, *Asclepias*.

Mr. Barnard had also seen one of these larvæ feeding on Milk-weed, but in this instance the larva was lighter in color than usual. Mr. Lintner remarked that it was unfortunate that the Potato Beetle would feed in the larval state on quite a number of different plants, and in the absence of vegetable food would sometimes feed on one another.

Mr. Saunders had observed this carnivorous propensity of the Potato Beetle larvæ on several occasions, and had seen the same among the Cut-worms, and in one or two instances among larvæ of the Lycaenidæ. Mr. Scudder had also observed similar habits. Prof. Comstock had noticed it especially in the Cotton-ball worm, *Heliothis armigera*.

Mr. Lintner invited Prof. Comstock to give some details in reference to the present plans and operations connected with his department at Washington. Prof. Comstock stated that he was endeavoring to work up a biological collection of insects on such a scale and in such a manner as shall be a credit to the Government. He has a large number of breeding cages, and an assistant who devotes his whole time to the rearing and mounting of insects. Special attention has been paid this year to insects feeding on clover, and the collection now contains over fifty species known to be destructive to this valuable crop. Prof. Comstock asked the aid of all Entomologists and assured them that any insects sent him would be well taken care of.

Mr. Scudder urged that Entomologists should recognize the fact that

it is of the utmost importance that a collection as complete as possible should be formed in Washington, and that it should assume a national character.

Mr. Barnard asked for some information as to the method of arrangement adopted in the collection referred to. Prof. Comstock stated that he arranged the insects in their usual order and place; with the insect, its usual food plant, and where it feeds on several or many plants, a memorandum is placed with such specimen containing a list of the plants; by this method much duplication is avoided.

Prof. Fernald was asked to give some explanations regarding his work on the Tortricidæ. He began the study of this group two years ago, commencing with those species found in Maine, but soon found that he could do nothing satisfactorily without taking in all those found throughout the United States and Canada. He has also found it necessary to study the European forms, and is now engaged in examining all these structurally, with the view, if possible, of improving their classification, and earnestly desires help from collectors in all parts of the country, especially in reference to the larvæ of the different species. He thinks that the character of the head, thoracic shield and anal plate will probably be of most value in separating the species.

Mr. Saunders reported that *Papilio cresphontes* had been found rather common both in the larval and perfect state in several parts of Ontario this season. Dr. Morris said that he had found *Papilio ajax* particularly local in its distribution, abounding in some localities, but very scarce in others.

Mr. Lintner stated that *Pholisora catullus* had not been found about Albany until three years ago, when a single specimen was taken; this year it is one of the commonest species in and about the city; its food plant is *Monarda punctata*.

Rev. C. J. S. Bethune referred to the great abundance of *Papilio philenor* one season many years ago in the neighborhood of Hamilton, Ontario; since then he was not aware that it had ever been found common in any part of Ontario.

A question was asked by Mr. Grote as to whether any of the species of *Cucullia* ever come to sugar. In reply, Dr. Bailey stated that he had captured three species of *Cucullia* and ten species of *Plusia* at sugar. Recently, when sugaring in a certain locality, he was surprised to find a

large number of Noctuids on decomposing animal matter, especially on some partially decomposed deer hides.

Mr. Grote reported having taken *Audela acronyctoides*; one male was captured this month at light. He thought that this was the first time it had been taken in New York State.

Mr. Saunders referred to the fact that in the location where he resided large numbers of the larvæ of *Clisiocampa sylvatica* had died from a fun-foid disease, and asked whether any of the members had tried solution of yeast as an insect destroyer, as lately suggested by Dr. Hagen.

Prof. Comstock stated that he had fed several larvæ on leaves dipped in yeast, but so far the yeast-fed larvæ had thrived remarkably well; his experiments had only been continued but a short time, hence he was not prepared to give any definite opinion on this subject.

The meeting then adjourned.

On Friday afternoon the closing session of the Club was held.

Dr. Morris stated that an apiarian in his neighborhood had been severely censured by some fruit-growers because his bees had pierced their peaches, grapes, etc., and destroyed the fruit; he asked whether the bees really were the original authors of the mischief, or whether they only attacked such fruit as had been previously pierced by birds, wasps and other insects. He knew that writers differed on this subject, and mentioned that Prof. Cook and Prof. Riley take opposite sides here.

Prof. Macloskie thought that the mandibles of bees were not strong enough to tear the outer covering of peaches or grapes. Prof. Comstock was of a different opinion. Prof. Riley remarked that in some articles which he had published in the *New York Tribune* he had proved that bees are the depredators, and made some further interesting statements on this subject.

Dr. LeConte spoke of the destruction of some of our valuable forest trees by various insects, and requested the members during the next year to collect facts and to report them at the next meeting, so that the nature of their depredations may become fully known and further remedies may be suggested.

Mr. Minot offered some very interesting remarks on the larvæ of a number of species of water insects, chiefly Dipterous, illustrated by many beautiful drawings of the larvæ highly magnified.

Mr. Lintner referred to the importance of the study of aquatic larvæ,

regretting that so little was known of their habits, and hoped that Mr. Minot would continue his studies in this direction.

From aquatic larvæ the conversation turned in the direction of that tiny tormentor, the mosquito, and marvellous accounts of its abundance in certain localities, and the sufferings of man and beast from its blood-thirsty propensities, were related by Mr. Scudder, Dr. Morris and others.

Mr. Riley made some remarks on the Cotton Worm, and stated that he had bred nine distinct parasites which preyed on this insect.

The time for adjournment having arrived, the members, after referring to the great pleasure they had derived from the interesting sessions of the Club, unanimously expressed the hope that all present might meet again next year in Boston.

IDENTIFICATIONS AND DESCRIPTIONS OF NOCTUIDÆ,
WITH A NEW HETEROCAMPA, AND NOTES
ON NEMEOPHILA.

BY A. R. GROTE, BUFFALO, N. Y.

Prodenia phytolacæ (Abbot & Smith, Vol. 2, 193, Pl. 97).

This species is sent me by Mr. Belfrage from Texas, under the number 706 (pink label). The insect has naked eyes, pellucid white and iridescent secondaries, the veins and external margin slightly soiled. It cannot be referred to *Xylomiges*, the type of which genus, the European *conspicillaris*, has hairy eyes, as have all the species referred by me to *Xylomiges* in my "Check List" and elsewhere. I think there can be no reasonable doubt that I have Abbot's species before me. It is, however, probable that this is Mr. Morrison's *Actinotia derupta*. If so, there seems to me no valid excuse for the new name, for Abbot's figures are quite recognisable, while the streaky fore wings of this species are unusually difficult for exact delineation. But what distinguishing marks there are upon them are indicated with sufficient exactitude in Abbot's plate, and I cannot hesitate as to the correct name for the species. The fore wings are confusedly marked, brown and gray streaked. The exterior line is

indicated by dark marks on the veins. The subterminal line is indicated by a yellowish streak, nearly touching the margin between veins 3 and 4, thence running obliquely inwardly and interrupted before internal margin. Fringes finely cut with pale yellowish. There is a more prominent dark streak along internal margin. It is smaller than the other species of the genus, and must not be confounded with any of the varieties of *Laphygma frugiperda*. With the identification of this species I think I have made out all of Abbot's published Noctuidæ. I am the first to re-discover *Adita chionanthi* of Abbot, Bull. Buff. S. N. S., 2, 63. I have referred Abbot's *vidua* to *desperata* Guen., and this reference has been generally accepted. There is, finally, a little doubt with regard to my identification of *calycanthata*, which perhaps cannot be removed until our species of *Homoptera* are better known.

Mamestra mucens (Hüb.), Zutr. 415, 16.

This species is sent me under the numbers 704 and 705, by Mr. Belfrage. Under the first number dark specimens, suffused with brown, are included. They cannot be considered as anything but a variation of this species, now for the first time recognized by me. The eyes are hairy and I regard it as congeneric with and allied to the eastern *confusa*. The species I have referred to *Morrissonia* are structurally allied to those included by me under *Mamestra*, but the pattern of ornamentation is distinctive of the forms included under *Morrissonia*. Belfrage took *mucens* March 10 to 23. Gueneé puts this species in "*Xylophasia*," which contains a mixture of forms, some with hairy and some with naked eyes. I have separated the species in this respect.

Morrissonia infidelis, n. s.

♂. This name is based on a single male from Michigan which is in good condition. Eyes hairy. Color of *vomerina*, but more reddish brown. Collar pale and a pale spot at base of primaries; a black line edging the collar behind; thorax rich reddish brown. Costa pale at base, below median vein a rich red-brown shade extends outwardly, suffusing the wing. Reniform L-shaped, the lower part open, brown-filled, pointing to base of wing; this is surmounted by the upright part of the spot which is small. Orbicular small, oblique, lying over and touching the extension of the reniform. The usual pale shade bordering vein 3; terminally the

wing is a little darker. Hind wings pale fuscous with interlined white-tipped fringes; beneath reddish gray, with common line marked by black scales on the veins. *Expanse* 36 mil. Differs by the stigmata not being fused and pale, but finely ringed, separate and brown-centered. It may eventuate that *vomerina* and *evicta* are not distinct specifically.

Euleucyptera cumatilis Grote, Proc. Ent. Soc. Phil., 4, 330, pl. 2, fig. 6.

I have noted in the Bull. U. S. Geol. Survey, p. 798, vol. 3, some of the variations of this species, which is common in all the Colorado collections. One specimen now before me from that locality has the discal mark on hind wings evident; another has an indication of the reniform on primaries. These spots are an apparently variable character, since from Kansas Prof. Snow has sent me an immaculate form.

There cannot be any doubt that Mr. Strecker has re-named and re-figured this species, in the report of the Chief of Engineers, as *Heliothis sulmala*, on page 1862, plate 2, fig. 5. It is precisely the form with the discal marks evident, and from Colorado, fully described and figured by me thirteen years previously, which Mr. Strecker reproduces. The species has been identified by me in many collections and is well known to Western collectors under its proper name. I have given, Bull. B. S. N. S., 2, pp. 219-221, the structure of the N. Am. *Heliothis* genera. From this, if we are to take note of the armature of the legs, the vestiture of the body, the structure of the eyes, which, together with the form of the genital pieces and the venation, are all that we can use to establish genera in the Noctuidæ, we must consider that the genus *Euleucyptera* cannot be fused with *Heliothis*.

Ingura declinata, n. s.

♂. Allied to *præpilata* from Texas, but larger, with longer wings. Ornamentation and color of *præpilata*, but the secondaries are more than half white, leaving but a moderate fuscous band along external margin. On fore wings the exterior line is less even. Below the discal angulation it shows a rounded uneven projection about vein 3. Otherwise the ornamentation is much like *præpilata*; both stigmata present and the two usual sub-apical black terminal longitudinal dashes; at base the rounded discolorous patch bounded by the half-line. Beneath, however, *declinata* is largely whitish, with a white apical patch on fore wings followed by a brown shade, enclosing the costal white dots beyond the angulation of the

extra mesial line, which latter is double, with white included space, marked on costa, else fragmentary. *Expanse* 30 mil. California.

Ingura flabella, n. s.

Male antennæ with long hanging pectinations, apices simple. Smaller than usual and very dark and silky. Fore wings blackish, darker shaded at outer two-thirds over the exterior line, which is double, narrow, deep black, angulated on cell, thence inwardly and shallowly arcuate, even through its course. Subterminal line flexuous, pale, apparent below the angulation of exterior line. From this point it is outwardly roundedly projected over the lower median nervules nearly to external margin. Reniform small, pale ringed. Two short fine superposed black dashes on external margin opposite the cell. The wing shows here, below the apices, a faint whitish shade. A faint brown tint suffuses the darker portion of the wing over the exterior line. Fringes blackish, narrowly cut with pale. Hind wings velvety black with white fringes. Beneath fringes on both wings largely white or whitish. Costal white dots on primaries strongly relieved. Both wings are crossed by three or four black approximate, parallel, extra-mesial lines which show faintly against the blackish ground color. Fringes on primaries faintly marked with blackish. Body brownish black; breast pale. This species is recognizable by its small size, broad wings and black, white-fringed secondaries. *Expanse* 22 mil. Kansas.

Graphiphora erythrolita, n. s.

♂ ♀. Male antennæ bipectinate, the stem outwardly red. Moderately sized, the color varying from obscure hoary purple to reddish. All the markings indistinct except the broken black subterminal shade and the more or less black-marked reniform spot. Outer line double, broken into dots. Reniform narrow, outwardly oblique. Orbicular rounded, often vague, more or less distinctly filled with blackish. Lines marked on costa. Primaries with the apices acute, external margin outwardly rounded. Thorax concolorous. Hind wings fuscous, paler at base. Beneath grayish, irrorate with black. A faint common line and discal dots. *Expanse* 30 to 32 mil. California (Yosemite, Big Trees), Mr. Behrens. Ten specimens examined.

I have received from Mr. Belfrage four fresh male specimens of a new *Heterocampa* under the numbers 616 (yellow label) and 533 (violet label).

Heterocampa Belfragei, n. s.

This species is less distinctly marked than usual, of moderate size. The tone of the fore wings is olive gray with a narrow curved brown discal mark, and the broken subterminal line is composed of brown spots, indented on interspace between veins 4 and 5, and preceded by a diffuse whitish shade superiorly. A short narrow curved black basal streak. Median lines double, interspaceally lunulate, indistinct. Hind wings pale, more or less markedly dusky on costa and external margin, crossed by incomplete double extra-mesial shade lines. Thorax like fore wings; the tuft behind blackish, and the tegulæ edged incompletely with black. Beneath pale, without markings, except a dark common shade line near the margin of the wings, which is not always noticeable. March 23; April 15, 17, 21. Average expanse 36 mil. Clifton, Bosque Co., Texas.

Nemeophila caespitis.

In our original paper on this species, which we figured together with *N. cichorii*, Trans. Am. Ent. Soc., vol. 1, plate 6, we stated that the material illustrated in that paper, collected in California by M. Lorquin, was communicated to us by Dr. Boisduval, and that we adopted the specific names with which the specimens were labelled by Dr. Boisduval (l. c. p. 3). In the Annales de la Société Ent. Belg., 1868-9, p. 75, Dr. Boisduval states that he gave us these species to illustrate and describes them himself as distinct from the European *plantaginis*, under these same names. It seemed to us that there must be sufficient characters to induce their separation, since an Entomologist so well acquainted with the European fauna as Dr. Boisduval, considered them to differ. Possibly they are only varieties of the European form, but seemingly well marked. Our responsibility is however limited to the publication of them on the authority of Dr. Boisduval.

Nemeophila geometrica Grote.

This form has proved to be merely a black form of *Nemeophila*. This reference was made by Dr. Packard in 1872, 4th Ann. Rep. Peab. Acad., p. 86. I originally described the species from a single defective specimen, without antennæ, in 1865, as a Zygaenid, allied to *Ctenucha*, in which I was in error. My mistake is paralleled by that of Dr. Boisduval, who described the black form of *Epicallia virginalis*, an Arctian, as a new species of the Zygaenid genus *Agarista*. Mr. Strecker has quite super-

fluously and in an exaggerated manner drawn attention to my mistake on different occasions, but if he would devote the time to looking up already described species before re-naming them and familiarize himself a little more with structure, his descriptions would have a value which they do not yet possess, and his time be better employed. I need not say that at the time I published these species there was comparatively little known on the subject and information was not so easily obtained as at present. A mistake like that made by myself, once corrected, has no further value in science, and in Mr. Strecker's hands is only used as an excuse for an unwarrantable personal attack.

Dr. Packard omitted the genus *Nemeophila* from his Synopsis of the Bombycidæ. It is not yet found in the Eastern States, but in the West and North. As collections come in it seems probable that we have but a single variable American form, but whether this is identical with the European cannot as yet be considered certain. The occurrence of this genus on the western coast increases the resemblance to the European fauna. Dr. Packard says regarding a species unknown to me: "*Platarctia Scudderii* Pack., as I have long suspected, is a *Nemeophila* and closely allied to *N. petrosa*, the anal claspers of the male being much like those of the latter" (l. c. p. 86). It may, then, turn out that the Californian forms are distinct from the North-western and that different species of these latter (*petrosa* and *Scudderii*) are to be separated. I wish here, however, merely to point out that we are not in a condition to come to positive conclusion as to these points as matters stand at present.

DESCRIPTIONS OF SEVERAL CRABRONIDÆ.

BY W. H. PATTON, WATERBURY, CONN.

HOPLISUS GRACILIS, n. sp.

♀. Length 10 mm. Black, clothed with an appressed brown pubescence as in *Hoplisus phaleratus* (*Gorytes phaleratus* Say); face with a very short silvery pile. Face, stripe between antennæ, anterior and posterior orbits, clypeus, labrum and mandibles (except the piceous tips), palpi, coxæ, trochanters and femora of anterior legs anteriorly, spot on

intermediate coxæ, posterior margin of collar, a small and a large spot beneath anterior wings, broad bands on scutellum and postscutellum, large ovate spot on each side of metathorax (irregular and tinged with ferruginous within), broad band at apex of first segment of abdomen, sharply emarginate and bordered with ferruginous anteriorly, interrupted band at apex of second segment, small spot on each side of third segment and line on each side of second ventral segment, all pale yellow. Legs dull yellow, paler anteriorly and on tarsi, the four anterior coxæ above and the posterior pair except at apex, and a stripe on the four posterior femora above, piceous-black; pulvillus and tips of tarsal claws fuscous. Antennæ, tubercles, tegulæ and line above honey-yellow, basal joints of antennæ yellow beneath and fuscous above. Sides of the first abdominal segment and the apical margin beneath, spot at tip of fifth segment and the sixth entirely, ferruginous; narrow borders of all the abdominal segments testaceous. Wings brown with a purple reflection, darker about the marginal cell, costa and stigma testaceous. Antennæ slender, curved, apical joint slightly narrowed towards tip. Front broad, sparsely punctured; eyes narrow, slightly sinuate within; clypeus twice as broad as long, the suture nearly straight, disk swollen, margined and truncate anteriorly, the upper lateral angles reaching the eyes; labrum transverse, ciliate; mandibles with only one tooth near the apex; head broader than usual posteriorly and limited by a sharp circular carina. Four longitudinal grooves on mesothorax anteriorly; base of both the scutellum and postscutellum transversely depressed and the groove divided by longitudinal carinæ; enclosure of metathorax marked off by two similar depressions, the enclosure with a median groove extending to the apex and several irregular grooves or carinæ at base which do not extend much beyond the middle; sides of "propodeum" swollen and distinctly separated from the remainder of the thorax and from each other, striate and sparsely punctate towards the median line, elsewhere smooth and polished. Basal segment of the abdomen more slender than in *H. phaleratus* (Say), slightly swollen at the apex beneath; second ventral segment transversely depressed at the base, not produced; enclosure on sixth segment broad (much broader than in any other species known to me), rounded at tip, sparsely punctured and with a smooth margin. Second submarginal cell much narrowed towards the marginal, receiving both recurrents beyond the middle and near together; the third submarginal cell large; submarginal nervure reaching border of wing; submedial cell of posterior wings extending

upon the externo-medial nervure to the same distance as the medial cell.
Southington, Conn., July.

NYSSON AEQUALIS, *n. sp.*

♂. Length 8.5 mm. Black; mandibles, scape, first joint of flagellum beneath and spot on second joint, testaceous; tips of mandibles and spot on the scape above, piceous; spot on scape beneath, uneven line on collar connected on each side with the tubercles and interrupted in the middle, the tubercles excepting a piceous dot, transverse spot on anterior portion of scutellum, the spines of metathorax, spots on anterior and posterior coxæ and at the tip of the four anterior femora beneath, and interrupted bands on the four basal segments of the abdomen, that on the fourth segment very narrow and that on the first segment broadest and none of the bands dilated at the sides, yellow; legs fulvous, the coxæ and a spot on the femora within black. Body clothed with a very fine pubescence, that upon the face, the sides of the dorsal face of the metathorax and the margins of the abdominal segments longer and distinct, apex of the abdomen with a fringe of curved bristles. Wings brown; third submarginal cell with a short side upon the marginal, submedial cell of posterior wings extending beyond the medial cell upon the externo-medial nervure. Body strongly punctured, the punctures somewhat confluent upon the pleura of mesothorax and upon the two apical segments of the abdomen and more sparse upon the other abdominal segments. A slight depression on each side of the disk of the mesothorax and an impressed median line extending upon the disk from the prothorax. Posterior portion of scutellum, the postscutellum and the base of metathorax longitudinally rugose, the rugæ slightly connected by transverse rugæ; the postscutellum elevated into a transverse ridge; sides of the metathorax coarsely reticulated, the reticulations radiating from the prominent spine; posterior face of the metathorax divided into three areas, the lateral areas excavated and divided into coarse reticulations by transverse ridges, the median area flat and finely reticulated. Twelfth joint of the antennæ thickest; the thirteenth joint almost equaling the scape in length, excavated beneath. Seventh segment of the abdomen terminating in an obtuse angle, its upper face having a sharp ridge on each side, the ridges terminating in stout spines.

Easthampton, Mass., July 24th.

The form of the apex of the abdomen will at once distinguish this from the species which it resembles.

NYSSON LATERALIS Pack.

Nysson laterale Pack., Proc. Ent. Soc. Phila., vi., 440, ♂.

♀. Differs from the ♂ in having an irregular line on the prothorax and a dot on each side of the fourth segment of the abdomen yellow. The yellow spots on the first segment of the abdomen are slightly emarginate anteriorly. The subterminal joint of the antennæ is not much lengthened beneath and the terminal joint is not distinctly pinched beneath. The abdomen is punctured with larger and smaller punctures, the larger punctures numerous and deep on the first segment.

Northern Illinois (E. J. Lake).

SPILOMENA PUSILLA.

Stigmaeus pusillus Say, Bost Jour., i., 378.

♀. Head and thorax not shining like the abdomen; wings beautifully iridescent; mandibles, basal joints of antennæ, the tegulæ and legs dull honey-yellow, tubercles black, the coxae and femora more or less black; upper face of metathorax enclosed by two ridges which curve inwards to unite on the verge of the truncation, the enclosure transversely reticulated and divided into three areas by two longitudinal ridges; apical segment of the abdomen compressed and acuminate.

Waterbury, Conn., Aug. 8th. Taken on the leaves of a rose bush in company with *Passaloecus annulatus* (Say) and *Blepharipus minimus* Pack.

CRAEBO BIGEMINUS, n. sp.

♀. Length 10 mm. Black; scape, first joint of flagellum beneath, mandibles except the piceous tip and lower border, interrupted line on collar, tubercles and square spot behind them, dot on tegulae, two dots on each anterior angle of the scutellum, the postscutellum, spot on each side of metathorax, dot on posterior coxae, tips of the femora, more broadly on the anterior and intermediate pairs, tibiae excepting a piceous line on the four anterior beneath, basal joints of the tarsi, fasciae on all the segments of the abdomen except the last, the fasciae on the first and fifth segments broadest, those on the three basal segments interrupted and the others narrowed in the middle, the fascia on the first segment broadest at the interruption, all yellow. Clypeus and sides of face silvery, the

middle of the clypeus with a faint golden tinge. Wings subhyaline, tegulae and nervures testaceous. Body very finely punctured, the punctures more sparse upon scutellum; sides of thorax delicately striate longitudinally; metathorax divided by a median impressed line, delicately striate, the longitudinal striae of the base curving to meet those of the sides, the striae of the posterior face transverse. Basal segment of the abdomen more coarsely punctured than the following segments. Enclosure on sixth segment flat and broad, coarsely punctured, the margin smooth.

♂. Length 10 mm. More slender, tubercles oscillated with black, spot behind them smaller, line on collar more widely interrupted, only one dot at the extreme lateral anterior angle of scutellum, no spot on metathorax, metathorax more coarsely striate, fascia on the third segment of abdomen entire, the fascia on fifth segment narrow and a similar fascia on sixth segment. Apical segment with a longitudinal impression. Antennae twelve-jointed, the third joint excavated at the base beneath, the fourth and fifth joints slightly excavated beneath; the sixth joint arcuated, much excavated beneath, thickened at the apex, the seventh joint obliquely attached and short like the following joints. The two basal joints of anterior tarsi white, a little dilated externally, the three apical joints black; first joint of intermediate tarsi short, much thickened beneath, especially towards the apex; second joint arcuated, produced at the apex beneath.

Waterbury, Conn., ♂ Aug. 23rd; ♀ Aug. 24th.

Allied to *C. dilectus* Cress., but in that species there is no yellow spot on the metathorax, the abdominal fasciae are broader, and in the ♂ the third joint of the anterior tarsus is white.

BLEPHARIPUS UNICUS, n. sp.

♀. Length 5 mm. Black; tips of the mandibles, the tegulae, spurs of posterior tibiae and extreme base of the first joint of posterior tarsi, the last joint of posterior tarsi, the tips of all the coxae and trochanters and the tips of the posterior femora and tibiae, piceous. Scape beneath, dot on first joint of flagellum, the tubercles, the four anterior tibiae excepting a black spot beneath, and the tips of the four anterior femora, yellow. The four anterior tarsi, excepting the fulvous apical joint, and the base of the posterior tibiae, whitish. Clypeus black, covered with a silvery pile; flagellum fulvous beneath. Thorax beneath and the abdomen with short scattered pubescence. The abdomen excepting the rufo-piceous

enclosure on the sixth segment entirely black. Wings hyaline, beautifully iridescent, the nervures and stigma black. Head, thorax and abdomen smooth. The head as wide as the thorax, and the vertex *longer than wide*, the front narrow. The ocelli arranged in an equilateral triangle, each in a separate depression; from the anterior ocellus an impressed line extends downwards upon the face and another extends backwards upon the vertex; on the inner orbit on the vertex is a slight groove curving at the end to come in a line with a short oblique groove behind each posterior ocellus. Prothorax sharply angulated beneath, mesopleura sharply angulated beneath near the coxae. Anterior portion of the mesonotum with four short lines which extend upon the collar as slight notches; mesonotum with a slight groove on each side of the disk and with a marginal row of reticulations over the tegulae. Scutellum quadrate, connected with the mesonotum by the broad lateral angles between which it is separated by a basal row of large reticulations. The semi-circular area on base of metathorax is encircled by a row of similar reticulations and divided by a deep median groove. Similar rows of reticulations extend in a slightly curved line down upon the mesopleura from the anterior wings and others mark the lateral sutures of the metathorax. The sides of the mesothorax beneath and the sides and posterior face of the metathorax are finely striate; these striae curve upon the metathorax above and are represented within the enclosure by striae of microscopic fineness. The posterior face of the metathorax has a deep triangular median depression above and is more coarsely rugose beneath. Area on the sixth segment of the abdomen not punctured, depressed medially, the sides much thickened and raised. Abdomen shorter than the rest of the body, narrow at base, broad near the tip. The posterior tibiae much thickened.

New Haven, Conn., July 15th.

The elongate head and clavate abdomen give this species a very peculiar appearance.

AN ANOMALOUS BOMBYLID.

BY S. W. WILLISTON, NEW HAVEN, CONN.

I have recently received from North Park, Colorado, two interesting specimens of *Anthrax*, one of which is remarkable for its neuration. They are of a new species of the *A. halcyon* group, and both apparently

females. In one specimen there are cross-veins connecting the upper branch of the third longitudinal with the second, thus forming three distinct submarginal cells as in *Exoprosopa*. In the other specimen they are entirely wanting, nor are there any rudiments. Again, in the first the second submarginal cell in the wing is intersected by a cross-vein running into the margin, and also a stump in the first submarginal before the furcation. In the other specimen they are entirely wanting.

Here we have two specimens which can not possibly be separated, of which one might be referred to *Exoprosopa* of the *fascipennis* group, and the other to *Anthrax*! I have also another undescribed species of this group from the West, with a stump of a cross-vein nearly dividing the first submarginal, and the third posterior cell bisected as in *halcyon*. These veins are evidently all spurious, but one can readily understand how natural selection has caused such to become persistent, thus constituting not only new species, but, as we understand them, new genera.

I append a description of the former species, that attention may be called to it.

Anthrax, sp. nov., near *fuliginosa* Lw.

Face yellow with yellow pile, black on the oral margin in front; front and two joints of the antennæ of the same color (the third wanting); the former with black hairs above, and the latter with black pile. Proboscis black. Thorax black with fulvous pile above, evidently; pleuræ with whitish hairs. Scutellum reddish, black at base. Ground color of abdomen black; second, third and fourth segments with large oval reddish spots on the sides; fifth and sixth reddish on the sides, seventh wholly so. Tomentum reddish. Sides of segments with black and white hairs. Venter yellow. Legs luteous, tips of anterior tibiæ and all the tarsi infuscated. Wings brown with the following hyaline spots: End of first submarginal and nearly all of second submarginal cells; the latter part of the intervening vein strongly clouded, as are all the others except between the discal and third posterior cells; second, third and fourth posterior cells; the larger part of the discal cell; and opposite it the inner part of the third posterior with a second spot. Also dimmer spots in the second basal cell and anal angle. Third posterior with a stump of a vein. Length 10 mm. From G. B. Grinnell.

DESCRIPTION OF PREPARATORY STAGES OF ARGYNNIS
IDALIA, DRURY.

BY W. H. EDWARDS, COALBURGH, W. VA.

EGG—Shaped like that of *Diana* and *Cybele*; conoidal, truncated, rounded at base, the sides well rounded; depressed at summit; marked vertically by about 18 vertical ribs, somewhat wavy, half extending from base to summit, the remainder ending irregularly at about three-fourths the distance from the base; between each pair of ribs are equi-distant, transverse, slightly raised striæ. Duration of this stage about 25 days.

YOUNG LARVA—Length .08 inch; cylindrical, somewhat thickest in middle; color pale yellow-brown, translucent; each segment from 3 to 12 marked by a transverse row of eight elongated, sub-ovate, tubercular dark spots, of which six lie on dorsum and upper part of side, and one below spiracle, the whole forming eight longitudinal rows; from each spot spring one or two long black curved hairs; head scarcely broader than 2nd segment, rounded in front, bilobed, the vertices rounded, sparsely pilose. The larvæ at this stage cannot be distinguished from *Diana*, *Cybele* or *Aphrodite*. The 1st moult occurred 23 days after the close of hibernation.

After 1st Moult—Length .15 inch, cylindrical, stout, tapering from middle either way; color cinereous, mottled and striped with brown; a macular stripe running with the dorsal rows of spines, and another just outside 1st laterals; the spines form six longitudinal rows, two dorsal and two on either side, and are long, fleshy, black, each beset with short black hairs; head black. Duration of this stage 12 days.

After 2nd Moult—Length .3 inch; stouter; mottled and striped with light and dark cinereous; the spines longer, more tapering, each dull yellow at base; head black. Duration of this stage 15 days.

After 3rd Moult—Length .7 inch; same shape; the dark portions quite black, the light of a dirty white; on dorsum a white stripe through which runs a black line; at the junction of the several segments a transverse white stripe, on which are short black lines; each segment crossed longitudinally by black stripes, interrupted by the spines, with a wedge-shaped mark between the spines; these are long, shining black, with black bristles, and mostly rise from pale orange tubercles; head flattened frontally, bilobed, the vertices rounded; color light brown. To next moult 17 days.

After 4th Moulting—Length 1 inch ; stouter, more tapering either way ; the ground color buff ; a broad buff band covers the middle of dorsum, enclosing a macular black line ; markings nearly as before ; the tubercles and base of spines mostly orange. To next moult 20 days.

After 5th Moulting—Length 1.2 inch ; 15 days after the moult the larva reached maturity.

MATURE LARVA—Length 1.75 inch ; cylindrical, obese, tapering from middle to either end ; furnished with six rows of tapering, fleshy spines, mostly somewhat recurved ; those of the two dorsal rows, on segments 6 to 10, largest ; the two dorsal spines on segment 2 shorter, about equal to those on 13, and directed forward ; all these silvery-white with black tips ; the spines of the lateral rows smaller, yellowish, those of the lower row orange at base and half way to top ; of the upper lateral row part are orange and at base only ; from each spine proceed several short, straight, fine black bristles ; color of body velvet-black, banded and striped with ochrey-yellow, changing to dull orange or red ; on middle of dorsum a broad band enclosing a macular black line, sometimes obsolete ; at the base of body a darker band ; at the junction of each pair of segments three narrow transverse stripes ending at the lower band ; each of the oblong black spaces on either side of dorsum crossed by short yellow stripes ; the last segment wholly yellow ; spiracles oval, black in white rings ; under side olive-brown ; legs black, pro-legs smoky-brown ; head rather small, rounded, flattened frontally, bilobed, the vertices rounded ; somewhat pilose ; color reddish-ferruginous on upper half, black below. Twenty hours after suspension made chrysalis.

CHRYSALIS—Length 1.1 inch ; general shape as in the allied species ; much compressed laterally, the wing cases very prominent and flaring at the base on ventral side ; head case nearly square at top, compressed and excavated on the sides, with two small ocellar prominences ; mesonotum rounded, a little carinated, followed by a deep rounded excavation ; abdomen tuberculated, the two dorsal rows extending to mesonotum ; color brown and yellow over abdomen ; the mesonotum pinkish-brown ; the wing cases brown and more decidedly tinted pink ; each dorsal tubercle shows a large dark patch on the anterior side ; similar patches on the wing cases ; the tubercles on mesonotum black, and each is joined by a black band to a patch back of and near the base ; about the head case several irregular dark or black spots ; on the wings a brown

patch at base, one on middle of disk and six elongated spots in row within the margin. Duration of this stage 17 days.

I have received eggs of *Idalia* in different seasons from Mr. G. M. Dodge, Nebraska, laid from middle to last of September, of females confined in bags over plants of violet. The larvæ hatched in from 23 to 25 days, and after eating the egg shells, went at once into lethargy, most of them taking refuge at the base of the leaf stalks on the violet on which I placed them. Some fixed themselves on the under side of the leaves. Their behavior is similar in all respects to that of *Diana*, *Cybele*, etc., passing five moults, and in the northern area of the species the butterflies emerge from chrysalis in July. At Martha's Vineyard I found them emerging 25th July and subsequent days. In the neighborhood of Philadelphia, I have been told by Mr. T. R. Peale that *Idalia* is double-brooded, there being one generation about 1st July, another about 1st September. He had found several caterpillars in New Jersey in the early part of June, one of which suspended the day after it was taken, and three days later made chrysalis. At the north there is but a single brood. Mr. Scudder has informed me that at Nantucket he observed a female *Idalia* laying eggs on *Sericocarpus conyzoides*, a species of white Aster, and the same would happen at Martha's Vineyard. But the larvæ eat violet readily in confinement.

Idalia is common in many localities, but rare in others, in the belt which it inhabits, and this belt extends from Massachusetts westward to Nebraska. I have never seen the species in West Virginia, but not unlikely it is found in Virginia and Maryland along the coast. It seems very subject to suffusion, and many examples are to be found in different collections in this country. One of the most striking of these was named *Ashtaroth* by Mr. Fisher, who took it, and it was figured in the Proc. Acad. Nat. Sci. Phil., 1852. I saw this beautiful example afterwards in the collection of Mr. Reakirt, borrowed from the Academy's collection, to which it has not yet been returned.

DONATIONS TO THE COLLECTION OF THE ENT. SOC. OF ONT.—We beg to acknowledge with many thanks the following donations to the collection of our Society: From J. A. Moffat, of Hamilton, Ont., one pair of *Arzama diffusa*, and from G. H. French, Carbondale, Illinois, one specimen of *Arctia rectilinea*.

ANNUAL MEETING OF THE ENTOMOLOGICAL SOCIETY
OF ONTARIO.

The ninth annual meeting of the Entomological Society of Ontario was held in Ottawa, in the Museum of the Ottawa Literary and Scientific Society, on Thursday, the 25th of September, at 4.30 p. m. In addition to the members of the Society, there were present on invitation about twenty members of the Ottawa Field Naturalists' Club.

In the absence of the Secretary-Treasurer, Mr. Jas. Fletcher was appointed Secretary *pro. tem.*

The President read a telegram which he had received from the Vice-President, regretting that important engagements prevented him from being present.

The annual statement of the Secretary-Treasurer was read and adopted. The report of the Council was read and adopted.

Mr. Couper then read the report of the Montreal Branch, indicating very satisfactory progress; this was referred for publication.

The annual address of the President was next in order, after the reading of which a vote of thanks was tendered to him both in the name of the Society and also in that of the Ottawa Field Naturalists' Club for his exceedingly interesting and instructive address, and a copy was requested for publication in the Annual Report.

The election of officers then took place, resulting in the appointment of the following gentlemen:

President, W. Saunders, London; Vice-President, Jas. Fletcher, Ottawa; Secretary-Treasurer, Jas. H. Bowman, London; Council—Rev. C. J. S. Bethune, M. A., Port Hope; Wm. Couper, Montreal; J. M. Denton and E. B. Reed, London; R. V. Rogers, Kingston; G. J. Bowles, Montreal, and W. Harrington, Ottawa. Editor of ENTOMOLOGIST, W. Saunders, London. Editing Committee—Jas. Fletcher, G. J. Bowles and E. B. Reed. Librarian, W. E. Saunders. Library Committee—E. B. Reed, J. M. Denton, H. B. Bock, with the President, Librarian and Secretary. Auditors—Chas. Chapman and A. Puddicombe, London.

A short time was agreeably spent in asking and replying to queries in reference to insects and their habits, and in examining the collections of insects in the Museum, after which the meeting adjourned.

JAS. FLETCHER,
Secretary *pro. tem.*

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